

E³ contd
25.80. The apparatus of claim ²¹76 further comprising another electrode and wherein said electrical condition is an electrical potential.

PP 5/31/02
26.81. The apparatus of claim ²¹76, wherein said array includes at least 9 uncharacterized platinum containing catalyst candidates.

REMARKS

In the Office Action mailed November 16, 2000 the Examiner rejected the pending claims. Applicants have cancelled claims 1, 5-15, 24-25, 41-42 and 47 without prejudice and have amended claims 43 and 51. Applicants also have added new claims 70-81. Basis for the amendments can be found throughout the specification, drawings and claims as filed, including but not limited to page 11, lines 19-25 ("independently controlled"); page 4, line 24 (regarding "more than nine"); page 6, lines 20-25; page 23, line 3-page 25, line 6 (regarding screening); page 10, lines 24-page 11, line 4 (regarding coupled/fixed position electrodes) and the Examples (e.g., regarding catalysts, phosphors and electropolymerization). In view of the present response, reconsideration and withdrawal of the present rejections is respectfully requested.

The Examiner is advised that U.S. Patent No. 6,187,164 issued on February 13, 2001 (see attached Form PTO/SB/08A). That patent is based upon a continuation-in-part application from the present application.

The Examiner rejected claims 1, 5-15, 24-25 and 41-42 under 35 USC 112 as allegedly unsupported by the specification. Applicants disagree with the Examiner's rejection as it is clear from the specification that such recitation does not constitute new matter, inasmuch as the thrust of the entire disclosure pertains to the creation of libraries of materials, which can vary in composition and which can be formed serially or in parallel (see e.g., Examples). Nonetheless, in view of the cancellation of these claims, the rejection is believed to be moot.

The Examiner rejected claims 1, 5-15, 41-50 under 35 USC 112 as allegedly indefinite. Again, Applicants disagree with the Examiner. The skilled artisan would readily have understood (both from the teachings of the specification and the claims) that the claims as drafted contemplate that complete reaction of all ions in solution

need not occur. However, in view of the cancellation of claims 1, 5-15 and 41-42, the rejections are believed to be moot. Even though the Examiner maintains the rejection against claims 43-50, the Examiner has set forth no reasons for rejection of those claims. Accordingly, Applicants believe the inclusion of those claims was in error and respectfully requests the Examiner to withdraw the rejection. Nonetheless, in view of the present pending claims as amended, any possible basis for rejection has been removed.

In response to the Examiner's art-based rejections, though Applicants disagree with the Examiner, Applicants have cancelled claims 1, 5-15, 24, 25 and 41-42, without prejudice. Applicant has amended claims 43 and 51, and has added new claims 70-81. The claims as now presented are believed to amply distinguish over the items of record in this case. In particular, Claim 43 has been amended to incorporate the recitations of claim 47. The latter claim was not rejected by the Examiner on the basis of any prior art reference. Accordingly, it is believed allowable.

Responsive to the Office Action, Claim 51 has been amended to further distinguish over the cited references and to clarify that the working electrodes remain in their assigned position during deposition and are not systematically moved throughout deposition as is the case, for instance, in the case of Southern '667 (see, e.g., col. 7, line 13 et seq). The claim also has been amended to recite the use of an array of electrodes corresponding to each of the more than 9 regions.

New Claims 70-81 are believed to correspond to allowable subject matter. The claim set corresponding to Independent claim 70 addresses as one distinguishing feature, an apparatus (which may be a single integrated unit or a plurality of separable modules) including the combination with a screening device, where the electrodes are coupled with the substrate (in contrast with the systematic movement of electrodes as, for example, in Southern). The claim set corresponding to Independent claim 74 addresses an apparatus of the present invention including an array of inorganic materials having been produced using the apparatus. Thus the subject matter of claim 74 further distinguishes over the biological art and encompasses particular types of arrays not disclosed in the art, which are prepared by electrochemical deposition of a source material (e.g., by varying an electrical

condition such as potential or current) and which offers the option to the user of employing or not employing further processing before screening. The pending dependent claims further delimit the above claims, and therefore, also distinguish over the cited items.

The foregoing amendments are taken in the interest of expediting prosecution and there is no intention of surrendering any range of equivalents to which Applicant would otherwise be entitled in view of the prior art. Moreover, the actions taken herein are not a concession that the references cited are statutory prior art to the claimed invention.

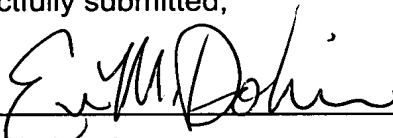
Conclusions

In view of Applicants' amendments and remarks, the Examiner's rejections are believed to be rendered moot. Accordingly, Applicants submit that the present application is in condition for allowance and requests that the Examiner pass the case to issue at the earliest convenience. Should the Examiner have any question or wish to further discuss this application, Applicants request that the Examiner contact the undersigned at (248) 593-9900.

If for some reason Applicants have not requested a sufficient extension and/or have not paid a sufficient fee for this response and/or for the extension necessary to prevent the abandonment of this application, please consider this as a request for an extension for the required time period and/or authorization to charge our Deposit Account No. 50-0496 for any fee which may be due.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

43. (TWICE AMENDED) An apparatus for making an array of materials by electrochemical deposition and for screening members of the array of materials for an electrical property, the apparatus comprising:

a substrate having spatially addressable electrodes corresponding to the members of the array of materials;

at least one other electrode, the at least one other electrode and the spatially addressable electrodes adapted to apply an independently variable electrical potential between the spatially addressable electrodes and the at least one other electrode so that when the substrate and the at least one other electrode contact a solution containing ions, [the] ions in said solution undergo chemical reaction at the spatially addressable electrodes forming the array of materials, wherein at least two members of the array of materials have different compositions; [and]

a detector for measuring the electrical property of the members of the array of materials, with the spatially addressable electrodes electrically connected to the detector; and

reference electrodes having ends located adjacent ends of the spatially addressable electrodes;

wherein the spatially addressable electrodes, the at least one other electrode and the reference electrodes are adapted to apply the independently variable electrical potential between each of the spatially addressable electrode and the at least one other electrode.

51. (TWICE AMENDED) An apparatus for making an array of different materials by electrochemical deposition, the array of materials having a plurality of members, the apparatus comprising:

a first chamber having an inlet for supplying a first ionic solution to the first chamber and an outlet for removing the first ionic solution from the first chamber;

a second chamber having an inlet for supplying a second ionic solution to the second chamber and an outlet for removing the second ionic solution from the second chamber;

a permeable membrane separating the first chamber from the second chamber, the permeable membrane allowing ions to migrate between the first chamber and the second chamber;

a substrate located in the first chamber, the substrate having predefined regions for receiving members of the array of materials;

an array of working electrodes having ends located adjacent [the] each corresponding predefined region[s], the ends of the working electrodes discretely and electrically connected to the predefined regions and each of the working electrodes being fixed in the same predefined region throughout array formation;

reference electrodes having ends located adjacent the ends of the working electrodes; and

a counter electrode located in the second chamber;

wherein the working electrodes, the reference electrodes and the counter electrode are adapted to apply an independently variable electrical [potential] condition between each of the predefined regions and the counter electrode so that ions undergo chemical reaction at the predefined regions of the substrate to form the array of materials in which at least [two] more than nine members of the array of materials have different compositions.

70. (NEW) An apparatus for making and screening an array of materials by electrochemical deposition, the array of materials having a plurality of members, the apparatus comprising:

a substrate having predefined regions for receiving the members of the array of materials;

an array of spatially addressable electrodes coupled with the substrate at the predefined regions;

at least one other electrode, the at least one other electrode and the spatially addressable electrodes adapted to apply an independently controllable electrical condition between each of the predefined regions and the at least one other

electrode so that when the substrate contacts a source material provided in a solution containing ions, ions in said solution undergo chemical reaction at the predefined regions forming the array of materials in which at least two members of the array of materials are different; and

means for screening for a common selected property of the members of the array of materials while the members of the array of materials are on the substrate.

71. (NEW) The apparatus of claim 70 wherein said means for screening includes a scanning device.

72. (NEW) The apparatus of claim 70 wherein said means for screening is capable of screening for catalytic activity.

73. (NEW) The apparatus of claim 70, wherein said means for screening is capable of electrochemical screening.

74. (NEW) An apparatus for housing an array of materials prepared by electrochemical deposition, the array of materials having a plurality of members, the apparatus comprising:

a substrate having a plurality of predefined regions defining an array including more than nine different uncharacterized electrochemically deposited inorganic materials;

an array of spatially addressable electrodes discretely coupled with the substrate at each of the predefined regions; and

at least one other electrode, the at least one other electrode and the spatially addressable electrodes adapted to apply an independently controllable electrical condition between each of the predefined regions and the at least one other electrode so that when the substrate contacted a source material provided in a solution containing ions, ions in said solution underwent chemical reaction at the predefined regions forming the array of materials.

*differences
- purpose of
prior art*

75. (NEW) The apparatus of claim 74, further comprising means for screening members of the array for a common selected property.

76. (NEW) The apparatus of claim 74 or 75, wherein said array includes more than nine uncharacterized catalyst candidates.

77. (NEW) The apparatus of claim 76, wherein said array includes at least 9 uncharacterized catalyst candidates selected from ternary and higher order metal alloys.

78. (NEW) The apparatus of claim 76, wherein said array includes at least 9 uncharacterized catalyst candidates selected from the system including Pt-Ru-Sn materials.

79. (NEW) The apparatus of claim 74 or 75, wherein said array includes at least 9 uncharacterized phosphor candidates.

80. (NEW) The apparatus of claim 76 further comprising another electrode and wherein said electrical condition is an electrical potential.

81. (NEW) ~~The apparatus of claim 76,~~ wherein said array includes at least 9 uncharacterized platinum containing catalyst candidates.